

Newsletter #4

Integration Challenges

With the design phase (Work package 1) now complete, this project has a defined concept of an integrated system and workflow, and selection of a CAM platform. Together with the four defined user cases and lessons learned during the introductory training by 3T, all the implications and challenges for an integrated post processing approach were identified. Integration of the various post processing steps (clamping, scanning, CAD/CAM and polishing) proved to be a challenge. For each step has its own interface and requirements, while the integration is to be applied not only to the printing and post processing production itself, also for the workflow and the design principles as a whole.

Waypoint

With the completion of the design phase of the project, the partnership now reached a waypoint in the research trail. In order to tackle the defined challenges, a Fast Prototyping Approach (FPA) will be applied, which means early testing and verification of the concept in separate steps. With this FPA the partnership even aims at a full-scale test setup in November 2018, where all interested organizations are invited to visit. Check out our newsletters and website on the progress of the full-scale testing.

RapidPro 2018

The 3D&FPP project consortium will be present at the RapidPro 2018 trade fair, booth 49. During the RapidPro conference, Mr. J. Lengkeek will present the partnership, the project and current results. He will be talking on the state of art of the four concepts when integrating post processing: clamping, mapping, CAD/CAM and polishing. The main focus of the presentation will be on the challenge to realise a flexible, affordable and universal solution for integrating post processing, considering interfacing and integration problems. See <https://rapidpro.nl/program/program-day-1/show/3D-FPP-lezing>.



Partner news

In November last year, RAMLAB (co-founded by partner RDM Makerspace and the Rotterdam Port Authority) unveiled the world's first class approved 3D printed ship's propeller. This groundbreaking success is the result of a close collaboration between RAMLAB, Promarin, Autodesk, Bureau Veritas and Damen.

The propeller is printed using Wire Arc Additive Manufacturing techniques, weighs 180 kg and contains 298 layers of Nickel Aluminium Bronze alloy. The printing process took 240 hours and provided a net-near-shape result, after which the propeller needed to be post processed. This took another 2 weeks, which altogether lowered the lead time for a propeller significantly.

Spanning over 130 cm, it is a perfect replica of the originally casted version and put to test on a Damen Stan Tug 1606 vessel. The testing program included bollard pull and crash stop testing in addition to speed trials. "Of course, we were all a bit nervous beforehand – after all, innovation always comes with a certain amount of unknowns – but the testing was a success," says Kees Custers, Damen Project Engineer R&D enthusiastically.

